Ultra Processed Foods – how did we get here?

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Statement of interests

- I have acted in an advisory role for the International Sweetener Agency.
- I have also worked with Frozen Brothers to advise on scientific matters during the recent Food Standards Agency review of the use of glycerol in slush drinks.
- My PhD was part funded by Nestle and Barry Callebaut.
- I have also worked on clinical trials and had speaker fees from food and pharmaceutical companies.
- In all of these activities, I have not agreed to state a company position.
- I have been paid for my time, but I have not had my views or opinions paid for or bought.

Objective:

To define “ultra-processed” and explore why we have this processing:

- Why do we have additives in our food?
- How does processing influence our food supply and lives?

What is food processing?

- We need to acknowledge that some form of food processing is necessary to maintain food safety in our modern society.
- Does it matter if it is done in a food production plant or at home?
- Food safety and food supply to populations in urban areas cannot depend on packaging, temperature control and other methods which do not change the structure or chemistry of the food stuff
- Is washing processing, is chopping, is cooking?
- Does it matter what the effects of the processing is on bioavailability and speed of availability of macronutrients and calories?

Did human evolution depend on food processing?

- It is thought that cooking helped humans to be humans
- It facilitated our brain development
- It allowed for humans to switch from being hunter gatherers to include agriculture
- The increase in bioavailability of nutrients which cooking and other simple forms of food processing helped early humans develop and societies to form
- The question could be some processing might help, but has it gone too far?

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What are UPFs?

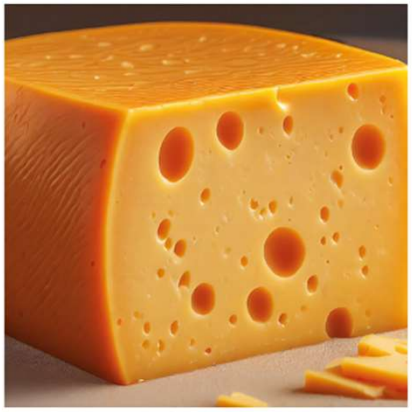
Ultra-processed foods

- There are multiple ways of classifying UPFs:
  - NOVA (Brazil, 2015),
  - National Institute of Public Health (NIPH) (Mexico, 2007)
  - International Agency for Research on Cancer (IARC, 2009)
  - University of North Carolina (2015)
  - International Food Information Council Foundation (IFIC, 2015)
- NOVA is the most used classification being reported in over 700 publications in 2023 alone

Are these foods processed?








Why is NOVA the most popular?

- It is relatively simple to apply to data sets four categories – three main groups
    - Category 1 - Unprocessed and minimally processed foods – from removing from original source through to pasteurisation.
    - Category 2 – Processed culinary ingredients
    - Category 3 – Processed foods, including freshly baked bread, foods canned in brine, syrup or oil
    - Category 4 – Ultra processed foods, including carbonated drinks, cakes and biscuits along with pre-prepared meat, cheese, pasta and pizza dishes
- May not be easy to assign categories – as SACN in UK acknowledged it can be quite broad definition of UPF.
- Can be rigid and binary which may have benefits, however if applying to legislation this could be problematic and difficult to quantify

Food processing and safety

- Tuberculosis, listeriosis and campylobacter less of an issue with pasteurised milk
- Clostridium botulinum can be controlled with proper canning techniques
- Many traditional food processing techniques help reduce microbial contamination of food and reduce spoilage and risk of food borne illnesses
- Calcium propionate in bread – stops rope (Bacillus mesentericus) and reduces mold growth
- Propionic acid formed in soughdough!
- This has increased the accessibility of food to urban communities

Emulsifiers

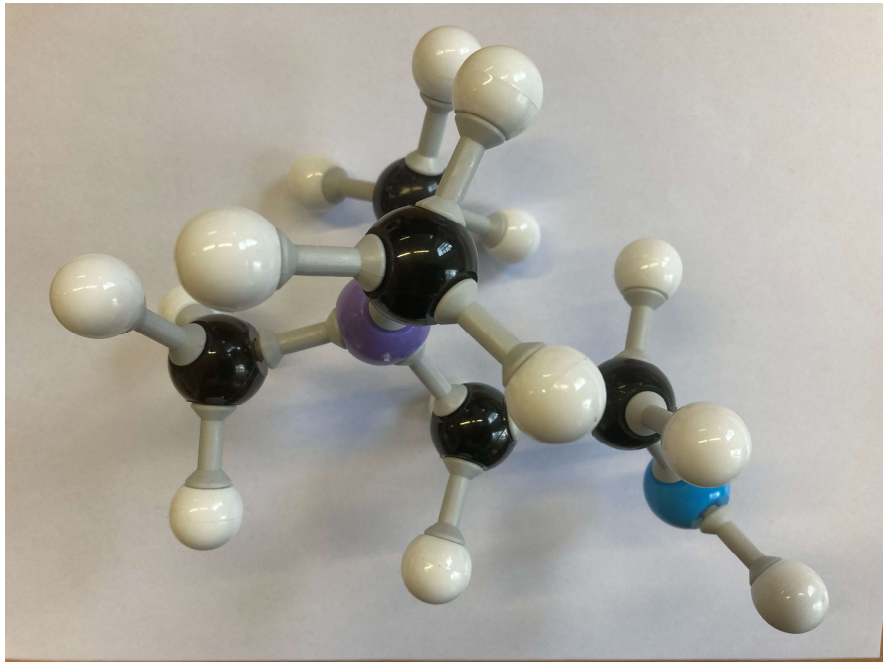
- Lecithin is not evil, its natural
- They help:
  - Retain water to keep food fresh
  - Slow down how fast frozen foods melt
  - Increase shelf life of cream-based foods
  - Vegetarian alternative to gelatine
  - Make foods look attractive on the shelf
- The first emulsifiers date back to 131 A.D

Fortification

- Fortified breakfast cereals contribute up to 30 per cent of average iron and 24 per cent of vitamin D intakes in the UK.
- Folic acid:
    - The proportion of babies in the population born with a neural tube defect in the US has decreased by 35% since folic acid fortification was required in 1998.
- UK flour mandated to be fortified to the level of wholemeal flour with iron, calcium, thiamine and niacin
- Organic regulations/ guidelines do not permit fortification!

Remember, everything is a chemical

- Consider cellulose (E460) a fibre which occur naturally in food.
- Ascorbic acid (E300) used as an oxidizing agent in bread manufacture
- E101 - $C_{17}H_{20}N_4O_6$ or riboflavin
- Everything is a chemical!



Food processing and food security

- When discussing food processing, it is useful to note its role in providing a reliable and more secure food supply to urban communities.
- This does not necessary mean it is a healthy food supply – it only has focused on adequacy
- This can be reflected in some of the challenging debates about lower income households – food desserts and availability of acceptable and affordable healthy foods
- So is an adequate supply of processed foods really a healthy one?

Processing has allowed the creation of products for consumers with specific requirements

- Think about specialist dietetic foods and free-from ranges:
  - Specialist sip feeds
  - Modified texture meals
  - Gluten-free
  - Dairy-free

Food structure

- Many aspects of “ultra-processing” change the food matrix.
- A big part of this type of processing is about increasing palatability/texture.
- Extrusion can make more consistent and interesting textures.
- Food can then be puffed, popped, or fried – new and tempting for consumers.
- Do we consider nutrition more than texture? Is homogenous texture part of a solution or part of the health problem?

Summary

- The drive towards more and more processing has multiple reasons behind it – food safety, convenience, fortification, taste….
- Food safety and food supply to populations in urban areas cannot depend on packaging, temperature control and other methods which do not change the structure or chemistry of the food stuff
- Is washing processing, is chopping, is cooking?
- How important is all this processing for health?
- The next talk will look at this!